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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,017	01/05/2001	D. Wade Walke	LEX-0115-USA	4534

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EXAMINER	
BUNNER, BRIDGET E	
ART UNIT	**PAPER NUMBER**
1647	11

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/755,017	WALKE ET AL.	
	Examiner	Art Unit	
	Bridget E. Bunner	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Status of Application, Amendments and/or Claims

The amendment of 16 July 2002 (Paper No. 10) has been entered in full. Claims 1-2 are amended and claims 5-8 are added.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-8 are under consideration in the instant application.

Withdrawn Objections and/or Rejections

1. The objections to the declaration at pg 2 of the previous Office Action (Paper No. 8, 13 March 2002) are *withdrawn* in view of the new declaration (Paper No. 10, 16 July 2002).

2. The objections to the specification at pg 2 of the previous Office Action (Paper No. 8, 13 March 2002) are *withdrawn* in view of the amended specification and amended title (Paper No. 10, 16 July 2002).

3. The rejection to claim 1 35 U.S.C. 102(b), second paragraph, as set forth at pg 10-11 of the previous Office Action (Paper No. 8, 13 March 2002) are *withdrawn* in view of the amended claim (Paper No. 10, 16 July 2002).

Claim Rejections - 35 USC § 101 and 35 USC § 112, first paragraph

4. Claims 1-8 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible, specific and substantial asserted utility or a well established utility. Novel biological molecules lack well established utility and must undergo extensive experimentation. The basis for this rejection is set forth for claims 1-4 at pages 2-5 of the previous Office Action (Paper No. 8, 13 March 2002).

Specifically, the claims are directed to an isolated nucleic acid molecule comprising at least 80 contiguous bases of the nucleotide sequence described in SEQ ID NO: 1. The claims recite an isolated nucleic acid molecule comprising the nucleic acid sequence presented in SEQ ID NO: 1. The claims also recite an isolated nucleic acid molecule comprising a nucleotide sequence that encodes at least fifty contiguous amino acids shown in SEQ ID NO: 2 and a nucleotide sequence that encodes the amino acid sequence shown in SEQ ID NO: 2. Additionally, the claims are directed to expression vectors and host cells comprising the nucleic acid molecules.

Applicant's arguments (Paper No. 10, 16 July 2002), as they pertain to the rejection have been fully considered but are not deemed to be persuasive for the following reasons.

(i) At pg 5 of the Response, Applicant asserts that the present invention has a number of substantial and credible utilities. Applicant argues that the Examiner's emphasis in the previous Office Action (that the disclosure does not provide any experimental data or information on whether the proteins encoded by the claimed nucleic acid molecules function like GPCRs) is misplaced as it has been long established that there is no statutory requirement for the disclosure of a specific example. It is noted that Applicant cites *in re Gay*, 135 USPQ 311 (C.C.P.A. 1962). Applicant also contends that the stated utility is legally sufficient and should control the utility analysis unless the Examiner meets the burden of establishing the lack of utility by making evidence of record that conclusively refutes the Applicant's asserted utility.

Applicant's arguments have been fully considered but are not found to be persuasive. Specifically, the polynucleotide and polypeptide of the instant application (SEQ ID NOs: 1 and 2, respectively) are not supported by either a credible, specific and substantial ("real-world")

asserted utility or a well established utility. The polynucleotide and polypeptide do not have a substantial utility because basic research is required to study the properties and activity of the claimed polynucleotide that encodes the polypeptide of SEQ ID NO: 2. The specification of the instant application does not disclose the function of the polynucleotide and polypeptide and only recites prophetic examples of how the claimed polynucleotide and polypeptide can be utilized in various assays (pg 9-16; 27-28, 33-36): Furthermore, the fact patterns of the case cited by the Applicant and of the instant rejection are significantly different, and the court decisions are not binding with regard to the instant rejections. Although as discussed in *In re Brana*, 34 USPQ 1436 (Fed. Cir. 1995), that pharmaceutical inventions necessarily include further research and development, it is clear from the instant specification that the polypeptide described therein is what is termed an "orphan protein" in the art. This is a protein whose cDNA has been isolated because of its similarity to known proteins. There is little doubt that, after complete characterization, this DNA and protein, may be found to have a specific and substantial credible utility. This further characterization, however, is part of the act of invention and until it has been undertaken, Applicant's claimed invention is incomplete. The instant situation is directly analogous to that which was addressed in *Brenner v. Manson*, 148 U.S.P.Q. 689 (Sus. Ct, 1966), in which a novel compound which was structurally analogous to other compounds which were known to possess anti-cancer activity was alleged to be potentially useful as an anti-tumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all chemical compounds are "useful" to the chemical arts when this term is given its broadest interpretation. However, the court held that this broad interpretation was not the intended

definition of "useful" as it appears in 35 U.S.C. §101, which requires that an invention must have either an immediately obvious or fully disclosed "real world" utility. The court held that:

> "The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility", "[u]nless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field", and "a patent is not a hunting license", "[i]t is not a reward for the search, but compensation for its successful conclusion."

(ii) At the bottom of page 5 of the Response, Applicant contends that there can be no question that those skilled in the art recognize the pharmaceutical utility of GPCR proteins because over half of the current drugs on the marker address GPCR proteins. At page 9-10 of the Response, Applicant also indicates that another example of utility of the present invention is in expanding the utility of data coming from the human genome project. Applicant states that persons of skill in the art, as well as thousands of venture capitalists and investors, readily recognize the utility, both scientific and commercial, of genomic data, specifically human genomic data. Applicant argues that billions of dollars have been invested in the human genome project, resulting in useful genomic data. Applicant asserts that the usefulness of human genomic data, such as the presently claimed nucleic acid molecules, is substantial and credible and well established.

Commercial success is not necessarily evidence of patentable utility. Commercial success requires more than the mere sale of a compound. Commercial success is discussed in the MPEP at 716.03 and appears to be applicable to obviousness rejections, but does not appear to be a valid consideration for utility which requires specific, substantial and credible utility.

Applicant also has not established a nexus between the *claimed* invention and evidence of commercial success.

Applicant argues that since GPCRs and the human genome project are the subject of actual commercialization and thus have achieved commercial success, which is well established to be strong evidence of patentable utility. This argument is not persuasive because sale of a compound is not evidence of commercial success and sale of a compound for use as a scientific tool does not appear to be a specific, substantial and credible utility as set forth in the "REVISED INTERIM UTILITY GUIDELINES TRAINING MATERIALS".

(iii) Applicant asserts at page 5-6 of the Response that methods similar to those of the present invention were used to identify the GPCR of issued U.S. patent 6,043,052. Applicant contends that issued U.S. patents are presumed to valid and to meet the requirements of 35 U.S.C. § 101, 102, 103, and 112, specifically, that they have utility, are novel, non-obvious, are enabled, meet written description requirements and particularly point out and distinctly claim the invention. Applicant submits that the GPCR of the instant application is in fact supported by issued U.S. Patent 6,043,052 as well as the plethora of other GPCR patents that the office has issued. Applicant argues that the issuance of other U.S. patents indicates that GPCR polynucleotides have utility and that such utilities were sufficiently specific and substantial to warrant the issuance of U.S. patents directed to methods used to identify and characterize GPCRs. Applicant states that the teachings of the patentable disclosures are directly applicable to the present invention and are evidence that those skilled in the art recognize the specific and substantial utility of GPCRs.

Applicant's arguments have been fully considered but are not found to be persuasive. Specifically, the current rejection is in compliance with the most currently-published version of the Utility Guidelines which require that all biological inventions must have credible, specific and substantial ("real world") utility. Additionally, each Patent Application is examined on its own merits. The invention that was deemed allowable in one patent has no bearing on this application.

(iv) At page 8 of the Response, Applicant argues that while such information is not a prerequisite to patentability, it can disclosed that the novel GPCR of the present invention contains a high degree of nucleic acid homology with known odorant receptors (for example, Genbank Accession No. U86270, among others). Applicant also asserts that the amino acid sequence of the GPCR of the present invention is identical to SwissProt Accession No. P58173 (gi 14423785), human olfactory receptor 2B6, as shown in Exhibit D. Applicant indicates that as this protein was annotated by those of skill in the art in no way associated with Applicant, Applicant's assertion regarding the function and utility of the protein of the present invention is credible.

Applicant's arguments have been fully considered but are not found to be persuasive. Applicant asserts that the NGPCR protein (SEQ ID NO: 2) of the instant application is homologous to existing G protein coupled receptors, specifically odorant receptors. However, Ji et al. (J Biol Chem 273(28): 17299-17302, 1998) indicate that G protein coupled receptors are classified into over 100 subfamilies according to sequence homology, ligand structure, and receptor function. A substantial degree of amino acid homology is found among members of a

particular subfamily, but comparisons between subfamilies show significantly less or no similarity. Mutant G protein coupled receptors are incapable of binding ligand or generating normal signals, constitutively generate signals, or are not appropriately expressed on the cell surface (pg 17299, pp 1-2). Also, "an increasing number of G protein coupled receptor subfamilies show diverse modes of ligand binding, signal generation, transmembrane signal transduction, and signal transfer to various cytoplasmic signal molecules other than G protein" (pg 17302, pp 4). Furthermore, since the specification does not disclose any methods or working examples that demonstrate the NGPCR polynucleotide and polypeptide of the instant application exhibit similar activities of other G-protein coupled receptors, particularly odorant receptors, the skilled artisan would not be able to categorize the polynucleotide and polypeptide of the instant application as a G-protein coupled receptor. Additionally, the specification of the instant application does not teach the skilled artisan which domains of the NGPCR polynucleotide and polypeptide are structurally characteristic of G protein-coupled receptors. One skilled in the art would not know the utility and function of NGPCR (SEQ ID NO: 2), even if it was a putative G protein coupled receptor because, as discussed in the related art above, G protein coupled receptors include a wide range of biologically active receptors, and neither the prior art nor the specification provides for the physiological significance of the disclosed and claimed receptor.

It is noted to Applicant that the specification of the instant application does not disclose that the claimed polynucleotide of SEQ ID NO: 1 or the polypeptide of SEQ ID NO: 2 are specifically homologous to *odorant/olfactory* receptors. Furthermore, the human olfactory receptor 2B6 (Hs6m1-32), which Applicant asserts the polypeptide of the instant application is 100% homologous to, has not been well characterized in the art as an odorant receptor. Since the

human olfactory receptor 2B6 has no functional or structural characteristics described in the art, the polypeptide of SEQ ID NO: 2 of the instant application has no credible, specific and substantial asserted utility or a well established utility.

Furthermore, the assertion that the disclosed NGPCR polynucleotides and polypeptides have biological activities similar to known odorant/olfactory receptors cannot be accepted in the absence of supporting evidence, because the relevant literature reports examples of polypeptide families wherein individual members have distinct, and sometimes even opposite, biological activities. For example, Tischer et al. (U.S. Patent 5,194,596) establishes that VEGF (a member of the PDGF, or platelet-derived growth factor, family) is mitogenic for vascular endothelial cells but not for vascular smooth muscle cells, which is opposite to the mitogenic activity of naturally occurring PDGF which is mitogenic for vascular smooth muscle cells but not for vascular endothelial cells (column 2, line 46 to column 3, line 2). The differences between PDGF and VEGF are also seen *in vivo*, wherein endothelial-pericyte associations in the eye are disrupted by intraocular administration of PDGF but accelerated by intraocular administration of VEGF (Benjamin et al., 1998, Development 125:1591-1598; see Abstract and pp. 1594-1596). In the transforming growth factor (TGF) family, Vukicevic et al. (1996, PNAS USA 93:9021-9026) disclose that OP-1, a member of the TGF-β family of proteins, has the ability to induce metanephrogenesis, whereas closely related TGF-β family members BMP-2 and TGF-β1 had no effect on metanephrogenesis under identical conditions (p. 9023, paragraph bridging columns 1-2). See also Massague, who reviews other members of the TGF-β family (1987, Cell 49:437-8, esp. p. 438, column 1, second full paragraph to the end). Similarly, PTH and PTHrP are two structurally closely related proteins which can have opposite effects on bone resorption (Pilbeam

et al., 1993, Bone 14:717-720; see p. 717, second paragraph of Introduction). Finally, Kopchick et al. (U.S. Patent 5,350,836) disclose several antagonists of vertebrate growth hormone that differ from naturally occurring growth hormone by a single amino acid (column 2, lines 37-48).

(v) At page 8-9 of the Response, Applicant argues that evidence of the "real world" substantial utility of the present invention is provided by the fact that there is an entire industry established based on the use of gene sequences or fragments thereof in a gene chip format. Applicant submits that the "real world" substantial industrial utility of gene sequences or fragments would appear to be widespread and well established. Applicant indicates that the sequences of the present invention describe a novel gene encoding a transporter and provide a unique identifier of the corresponding gene. Applicant asserts that since the present sequences are specific markers of the human genome, and such specific markers are targets for the discovery of drugs that are associated with human disease, those of skill in the art would instantly recognize that the present nucleotide sequences would be an ideal, novel candidate for assessing gene expression using such gene chips.

Applicant's arguments have been fully considered but are not found to be persuasive. The asserted utility of assessing gene expression via DNA chips with the claimed polynucleotides is credible but not specific or substantial. Such can be performed for any polynucleotide. Further, the specification does not disclose any specific nucleic acid sequences used to generate the gene chip. Since this asserted utility is also not present in mature form, so that it could be readily used in a real world sense, the asserted utility is not substantial. Although Applicant indicates that the sequences in the instant specification (SEQ ID NOs: 1 and 2) are

specific markers of the human genome, the specification does not teach if the entire sequences are to be used as markers or sections thereof. Additionally, one skilled in the art would not readily use the claimed nucleotide sequence of SEQ ID NO: 1 to make protein to be used for, for example, tissue-typing, in a real world sense since the protein is not specific to one tissue and is not associated with any disease or disorder. Also, evidence of mere expression in a cell or tissue is not tantamount to a showing of a role in any human diseases. There is also no disclosure that the claimed polynucleotide encoding the NGPCR polypeptide is expressed at altered levels or forms in any specific, diseased tissue or cell relative to control healthy tissue or cell. Therefore, the skilled artisan would not know how to make and/or use the claimed invention in its full scope.

The regulation and sequestration of the claimed polynucleotide (SEQ ID NO: 1) of the instant application, is not well characterized and one skilled in the art the art would not find the utility of the polynucleotide and polypeptide to be well-established, well-known or obvious.

5. Claims 1-8 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. The basis for this rejection is set forth for claims 1-4 at pages 2-5 of the previous Office Action (Paper No. 8, 13 March 2002).

Applicant's arguments (Paper No. 10, 16 July 2002), as they pertain to the rejection have been fully considered but are not deemed to be persuasive for the following reasons.

Applicant asserts that the claims have been shown to have a specific, substantial, credible and well established utility, as detailed above.

Applicant's arguments at the top of page 11 of the Response have been fully considered but are not found to be persuasive. Specifically, since Applicant has not provided evidence to demonstrate that the NGPCR polynucleotide has a credible, specific and substantial asserted utility or a well established utility, one skilled in the art would not know how to use the claimed invention.

6. Furthermore, claims 1-2 and 5-6 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which allegedly was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The basis for this rejection is set forth for claims 1-2 at pages 6-7 of the previous Office Action (Paper No. 8, 13 March 2002).

Claims 1-2 and 5-6 are directed to an isolated nucleic acid molecule comprising at least 80 contiguous bases of the nucleotide sequence described in SEQ ID NO: 1. The claims also recite an isolated nucleic acid molecule comprising a nucleotide sequence that encodes at least 50 contiguous amino acids of the polypeptide sequence shown in SEQ ID NO: 2.

Applicant's arguments (Paper No. 10, 16 July 2002), as they pertain to the rejection have been fully considered but are not deemed to be persuasive for the following reasons.

On page 11 of the Response, Applicant asserts that, as discussed above, given the preponderance of art on the subject of GPCRs, issued U.S. patents describing GPCRs, drugs on the market target GPCRs, those skilled in the art would clearly know how to make and use the

claimed invention without undue experimentation. Applicant submits that portions of the nucleic acid and amino acid sequences of the GPCR of the present invention provide a method of manipulating and utilizing the sequences as probes in diagnostic and prognostic assays for example.

Applicant's arguments have been fully considered but are not found to be persuasive. As discussed in the previous Office Action, the problem of predicting protein and DNA structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein and DNA is extremely complex. Certain positions in the amino acid sequence are critical to the protein's structure/function relationship, e.g. such as various sites or regions directly involved in binding, activity, and in providing the correct three-dimensional spatial orientation of binding and active sites. These regions can tolerate only relatively conservative substitutions or no substitutions. Related literature, such as Spiegel (Annual Rev. Physiol. 58:143-170, 1995) and Pauwels et al. (Molec. Neurobiol. 17(1-3): 109-135, 1998) discuss gain-of-function and loss-of-function mutations in G protein-coupled receptors that cause a wide spectrum of hereditary and somatic disorders and diseases. For example, the ***single*** mutation of a lysine residue to a glutamate residue at position 296 in the rhodopsin receptor results in constitutive activation of that receptor and autosomal dominant retinitis pigmentosa (see Pauwels et al., pg 122, table 3). Applicant has provided little or no guidance beyond the mere presentation of sequence data to enable one or ordinary skill in the art to determine, without undue experimentation, the positions in the NGPCR protein and DNA which are tolerant to change and the nature and extent of changes that can be made in these positions.

Due to the large quantity of experimentation necessary to generate the infinite number of derivatives recited in the claims and possibly screen same for activity, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of working examples directed to same, the complex nature of the invention, the state of the prior art which establishes the unpredictability of the effects of mutation on protein structure and function, and the breadth of the claims which fail to recite any structural or functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

7. Claims 1-2 and 5-6are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The basis for this rejection is set forth for claims 1-2 at pages 6-7 of the previous Office Action (Paper No. 8, 13 March 2002).

Claims 1-2 and 5-6 recite an isolated nucleic acid molecule comprising at least 80 contiguous bases of the nucleotide sequence described in SEQ ID NO: 1. The claims also recite an isolated nucleic acid molecule comprising a nucleotide sequence that encodes at least 50 contiguous amino acids of the polypeptide sequence shown in SEQ ID NO: 2.

Applicant's arguments (Paper No. 10, 16 July 2002), as they pertain to the rejection have been fully considered but are not deemed to be persuasive for the following reasons.

Applicant argues at page 11 of the Response that the written description requirement was met by the application as originally filed. On page 13, Applicant contends that, as opposed to the

situation set forth in *University of California v. Eli Lilly and Co.*, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997) and *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993), the nucleic acid sequences of the present invention are not distinguished on the basis of function, or a method of isolation, but in fact are distinguished by structural features--a chemical formula, i.e., the sequence itself. Applicant submits that using the nucleic acid sequences of the present invention, the skilled artisan would readily be able to distinguish the claimed nucleic acids from other materials on the basis of the specific structural description provided. Applicant states that if one knows the full length sequences, one also knows a fragment comprising 24 or 80 contiguous nucleotides derived from said sequences.

Applicant's arguments have been fully considered but are not found to be persuasive. Applicant has not provided evidence to demonstrate that the skilled artisan would be able to envision the detailed structure of the infinite number of polynucleotides and polypeptides recited in the claims. The description of one NGPCR polynucleotide and polypeptide in the specification of the instant application is not a representative number of embodiments to support the description of an entire genus of functionally equivalent polynucleotides and polypeptides which incorporate all variants and fragments comprising at least 80 contiguous bases of the nucleotide sequence of SEQ ID NO: 1 or at least fifty contiguous amino acids of the amino acid sequence of SEQ ID NO: 2. Therefore, only an isolated nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO: 1 and a nucleic acid molecule which encodes a polypeptide consisting of the amino acid sequence of SEQ ID NO: 2, but not the full breadth of the claim meets the written description provision of 35 U.S.C. §112, first paragraph. Furthermore, the broad brush discussion of making or screening for variants does not constitute a disclosure of a

representative number of members. No such variants were made or shown to have activity. Only one member, the nucleic acid molecule of SEQ ID NO: 1 and the polypeptide of SEQ ID NO: 2, was disclosed. The specification's general discussion of making and screening for variants constitutes an invitation to experiment by trial and error. Such does not constitute an adequate written description for the claimed variants.

Conclusion

No claims are allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bridget E. Bunner whose telephone number is (703) 305-7148. The examiner can normally be reached on 8:30-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on (703) 308-4623. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9305.

Gary L. Kunz

GARY KUNZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

BEB
Art Unit 1647
October 18, 2002